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14

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,480	07/29/2003	Masao Kano	2018-758	4677

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EXAMINER

TRIEU, THERESA

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/628,480	Applicant(s) KANO ET AL. ed	
	Examiner Theresa Trieu	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-4, 7, 8 and 11-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-4, 7, 8 and 11-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>Oct. 28, 2004</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is responsive to the applicant's amendment filed on October 28, 2004.

Claims 2-4, 7, 8 and 11 have been amended. Claims 1, 5, 6, 9 and 10 have been canceled. Thus, claims 2-4, 7, 8 and 11-13 are pending in this application.

Allowable Subject Matter

The indicated allowability of claims 2-4, 7, 8 and 11-13 are withdrawn in view of the newly discovered reference(s) to any one of Linder '084, Ehmann '255 and Horioka '094.

Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2, the phrase "closest portion of the inner wall surface of the outlet, which is closet to the second wall surface of the discharge groove" renders the claims indefinite, because it is unclear how close the distance (i.e. ½ inch or ½ cm or ½ mm..) of the inner wall surface of the outlet relative/the second wall surface of the discharge groove is. Applicants are required to define the distance.

Claim 4, the phrase "a closest portion of the inner wall surface of the outlet, which is closest to the second end wall surface of the discharge groove is spaced away from the second

end wall surface.....direction of the rotor” renders the claims indefinite, because it is unclear how far the distance of the inner wall surface of the outlet and the second end wall surface of the discharge groove is. Applicants are required to define the distance of the inner wall surface of the outlet is spaced away from the second end wall surface of the discharge groove.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 2 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Linder (Publication Number GB 2,015,084).

Regarding claims 2 and 11, as shown in Fig. 3, Linder discloses a vane pump comprising a housing (7) that includes: a rotor chamber (not numbered; however, clearly seen in Fig. 3); a rotor (5) that is rotatable received in the rotor chamber and has a plurality of vane grooves (not numbered; however, clearly seen in Fig. 3); a plurality of vanes (9), each of which is radially reciprocally received in a corresponding one of the vane grooves of the rotor; an inlet (11) is communicated with each corresponding pump chamber to supply working fluid into the pump chamber; at least one outlet (12) that communicates between inside and outside of the rotor chamber; a discharge groove (14) includes a first end and second end (not numbered; however, clearly seen in Fig. 3); wherein the second end of the discharge groove is positioned away from the first end of the discharge groove in the rotational direction of the rotor; and the at least one

Art Unit: 3748

outlet (12) extends directly from the second end of the discharge groove and is parallel to the rotational axis of the rotor (5); and the second end wall surface of the discharge groove (14) is flush with a closest portion of the inner wall surface of the outlet (12).

3. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Ehamnn (Publication Number DE 3,135,255).

Regarding claim 4, as shown in Figs. 1 and 2, Ehmann discloses a vane pump comprising a housing (10) that includes: a rotor chamber (19); a rotor (8) that is rotatable received in the rotor chamber and has a plurality of vane grooves (23'); a plurality of vanes (23), each of which is radially reciprocally received in a corresponding one of the vane grooves of the rotor; an inlet (24) is communicated with each corresponding pump chamber to supply working fluid into the pump chamber; at least one outlet (25) that communicates between inside and outside of the rotor chamber; a discharge groove (not numbered; however, clearly seen in Fig. 2) includes a first end and second end (not numbered; however, clearly seen in Fig. 2); wherein the second end of the discharge groove is positioned away from the first end of the discharge groove in the rotational direction of the rotor; and the at least one outlet (25) extends directly from the second end of the discharge groove and is parallel to the rotational axis of the rotor (8); and a closest portion of the inner wall surface of the outlet (25) is spaced away from the second end wall surface of the discharge groove in the rotational direction of the rotor.

4. Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated by Horioka et al. (Horioka) (Publication Number JP 07-049094).

Regarding claim 8, as shown in Figs. 1 and 3, Horioka discloses a vane pump comprising a housing (3) that includes: a rotor chamber (8); a rotor (2) that is rotatable received

Art Unit: 3748

in the rotor chamber and has a plurality of vane grooves (not numbered; however, clearly seen in Fig. 1); a plurality of vanes (1), each of which is radially reciprocally received in a corresponding one of the vane grooves of the rotor; an inlet (3a) is communicated with each corresponding pump chamber to supply working fluid into the pump chamber; at least one outlet (3b) that communicates between inside and outside of the rotor chamber; a discharge groove (not numbered; however, clearly seen in Fig. 1) includes a first end and second end (not numbered; however, clearly seen in Fig. 1); wherein the second end of the discharge groove is positioned away from the first end of the discharge groove in the rotational direction of the rotor; and the at least one outlet (3b) extends directly from the second end of the discharge groove; the at least one outlet including first and second outlets; the first outlet extending generally parallel to a rotational axis of the rotor; and the second outlet extending perpendicular to the rotational axis of the rotor (2 – see Fig. 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

Art Unit: 3748

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. *Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ehmann '255 in view of design choice.*

Ehmann discloses the invention as recited above; however, Ehmann fails to disclose a distance between the second end wall surface of the discharge groove and the closest portion of the inner wall surface of the outlet in the rotational direction of the rotor is equal or smaller than axial extend ($H \leq D$) of the second end wall surface of the discharge groove.

It is examiner's position that one having ordinary skill in the vane pump art, would have found it obvious to utilize the relationship between the step and the depth of the discharge groove, since they are merely design parameters, depending on temperature, pressure, or stress acted/applied on the vane and the viscosity of the fluid. Moreover, there is nothing in the record which establishes that the claimed relationship between the step and the depth of the discharge groove, presents a novel of unexpected result (See *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

6. *Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horioka '094 in view of design choice.*

Horioka discloses the invention as recited above; however, Horioka fails to disclose at least a portion of the inner wall surface of the outlet extending in a direction that is tangent to rotation direction of the rotor.

It is examiner's position that one having ordinary skill in the vane pump art, would have found it obvious to utilize the angle of the inner wall surface of the outlet with respect to the rotation of the rotor, since they are merely design parameters, depending on temperature, pressure, or stress acted/applied on the vane and the viscosity of the fluid. Moreover, there is nothing in the record which establishes that the claimed least a portion of the inner wall surface of the outlet extending in the tangential direction with respect to the rotation direction of the rotor, presents a novel or unexpected result (See *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

7. *Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehamnn (Publication Number DE 3,135,255) in view of legal precedent.*

Regarding claims 12 and 13, as shown in Figs. 1 and 2, Ehmann discloses a vane pump comprising a housing (10) that includes: a rotor chamber (19); a rotor (8) that is rotatable received in the rotor chamber and has a plurality of vane grooves (23'); a plurality of vanes (23), each of which is radially reciprocally received in a corresponding one of the vane grooves of the rotor; an inlet (24) is communicated with each corresponding pump chamber to supply working fluid into the pump chamber; at least one outlet (25) that communicates between inside and outside of the rotor chamber; a discharge groove (not numbered; however, clearly seen in Fig. 2) includes a first end and second end (not numbered; however, clearly seen in Fig. 2); wherein the second end of the discharge groove is positioned away from the first end of the discharge groove in the rotational direction of the rotor. However, Ehmann fails to disclose the outlet extending generally in a direction of gravity from intermediate point between the first and second ends of

Art Unit: 3748

the discharge groove and the discharge groove is sloped in the direction of gravity from both the first and second end of the discharge groove toward the outlet.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have positioned the position of the outlet port and the angle of the discharge groove with respect to the rotor, since the screw would have performed equally well in that location and the mere repositioning of parts not effecting the functioning of the device involves only routine skill in the art, *In re Japikse*, 86 USPQ 70.

Prior Art

The IDS (PTO-1449) filed on October 28, 2004 has been considered. An initialized copy is attached hereto.

Communication


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Theresa Trieu whose telephone number is 571-272-4868. The examiner can normally be reached on Monday-Friday 8:30am- 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E Denion can be reached on 571-272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3748

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TT



Theresa Trieu
Primary Examiner
Art Unit 3748